

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

LISTING OF CLAIMS:

1. (Original): A process for the production of L-ascorbic acid comprising:
 - (a) contacting an enzyme with a substrate which is selected from the group consisting of L-gulose, L-galactose, L-idose, and L-talose; and
 - (b) isolating L-ascorbic acid from the reaction mixture,
wherein said enzyme has the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence that is 90% identical thereto with the activity to produce L-ascorbic acid.
2. (Original): A process for the production of L-ascorbic acid with an enzyme having the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence that is 90% identical thereto, with the activity to produce L-ascorbic acid, whereby L-ascorbic acid is produced from a substrate which is selected from the group consisting of L-gulono-1,4-lactone, L-gulonic acid, L-galactono-1,4-lactone, L-galactonic acid, L-idono-1,4-lactone, L-idonic acid, L-talono-1,4-lactone, and L-talonic acid.
3. (Original): A process for the production of L-gulono-1,4-lactone or L-gulonic acid with an enzyme having the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence that is 90% identical thereto, with the activity to produce L-gulono-1,4-lactone or L-gulonic acid, whereby L-gulono-1,4-lactone or L-gulonic acid is produced from L-gulose.
4. (Original): A process for the production of L-galactono-1,4-lactone or L-galactonic acid with an enzyme having the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence that is 90% identical thereto, with the activity to produce L-galactono-1,4-lactone or L-galactonic acid, whereby L-galactono-1,4-lactone or L-galactonic acid is produced from L-galactose.
5. (Currently amended): A process according to claim 2 ~~any one of claims 1 to 4~~ comprising (a) contacting the enzyme with the respective substrate and

(b) isolating the product which is selected from the group consisting of L-ascorbic acid, L-gulono-1,4-lactone, L-gulonic acid, L-galactono-1,4-lactone, and L-galactonic acid from the reaction mixture.

6. (Currently amended): A process according to claim 1 any one of claims 1 to 5, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

7. (Original): A process according to claim 6, wherein the process is conducted at a pH of about 2 to about 8 and at a temperature of about 18°C to about 42°C.

8. (Currently amended): A Use of Enzyme B of G. oxydans DSM 4025 in a process for producing L-ascorbic acid comprising contacting from a substrate which is selected from the group consisting of L-gulose, L-galactose, L-idose, L-talose, L-gulono-1,4-lactone, L-gulonic acid, L-galactono-1,4-lactone, and L-galactonic acid with Enzyme B of G. oxydans DSM 4025 and isolating L-ascorbic acid from the reaction mixture; wherein Enzyme B has the following physico-chemical properties:

- (a) molecular weight of about 60,000 Da on SDS-PAGE;
- (b) substrate specificity for primary and secondary alcohols and aldehydes;
- (c) pH-stability at pH of about 6 to about 9;
- (d) pH-optimum at pH of about 8.0; and
- (e) inhibited by Cu²⁺, Zn²⁺, Mn²⁺, Fe²⁺, and Fe³⁺.

9. (Currently amended): A Use of Enzyme B of G. oxydans DSM 4025 in a process for producing L-gulono-1,4-lactone or L-gulonic acid comprising contacting from L-gulose with Enzyme B of G. oxydans DSM 4025 and isolating L-gulono-1,4-lactone or L-gulonic acid from the reaction mixture, wherein Enzyme B has the following physico-chemical properties:

- (a) molecular weight of about 60,000 Da on SDS-PAGE;
- (b) substrate specificity for primary and secondary alcohols and aldehydes;

- (c) pH-stability at pH of about 6 to about 9;
- (d) pH-optimum at pH of about 8.0; and
- (e) inhibited by Cu²⁺, Zn²⁺, Mn²⁺, Fe²⁺, and Fe³⁺.

10. (Currently amended): ~~A Use of Enzyme B of G. oxydans DSM 4025 in a process for producing L-galactono-1,4-lactone or galactonic acid comprising contacting from L-galactose with Enzyme B of G. oxydans DSM 4025 and isolating L-galactono-1,4-lactone or galactonic acid from the reactiion mixture, wherein Enzyme B has the following physico-chemical properties:~~

- (a) molecular weight of about 60,000 Da on SDS-PAGE;
- (b) substrate specificity for primary and secondary alcohols and aldehydes;
- (c) pH-stability at pH of about 6 to about 9;
- (d) pH-optimum at pH of about 8.0; and
- (e) inhibited by Cu²⁺, Zn²⁺, Mn²⁺, Fe²⁺, and Fe³⁺.

11. (New): A process according to claim 3 comprising (a) contacting the enzyme with the substrate and (b) isolating the L-gulono-1,4-lactone or L-gulonic acid from the reaction mixture.

12. (New): A process according to claim 4 comprising (a) contacting the enzyme with the substrate and (b) isolating the L-galactono-1,4-lactone or L-galactonic acid from the reaction mixture.

13. (New): A process according to claim 2, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

14. (New): A process according to claim 3, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

15. (New): A process according to claim 4, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

16. (New): A process according to claim 5, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

17. (New): A process according to claim 11, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.

18. (New): A process according to claim 12, wherein the process is conducted for 1 to 120 h at a pH of about 1 to about 9 and at a temperature of about 13°C to about 45°C.